

ABSTRACT OF THE DISCLOSURE

A flexible, policy-based, mechanism for managing, monitoring, and prioritizing traffic within a network and allocating bandwidth to achieve true quality of service (QoS) is provided. According to one aspect of the present invention, a method is provided for managing bandwidth allocation in a network that employs a non-deterministic access protocol, such as an Ethernet network. A packet forwarding device receives information indicative of a set of traffic groups, such as: a MAC address, or IEEE 802.1p priority indicator or 802.1Q frame tag, if the QoS policy is based upon individual station applications; or a physical port if the QoS policy is based purely upon topology. The packet forwarding device additionally receives bandwidth parameters corresponding to the traffic groups. After receiving a packet associated with one of the traffic groups on a first port, the packet forwarding device schedules the packet for transmission from a second port based upon bandwidth parameters corresponding to the traffic group with which the packet is associated. According to another aspect of the present invention, a method is provided for managing bandwidth allocation in a packet forwarding device. The packet forwarding device receives information indicative of a set of traffic groups. The packet forwarding device additionally receives information defining a QoS policy for the traffic groups. After a packet is received by the packet forwarding device, a traffic group with which the packet is associated is identified. Subsequently, rather than relying on an end-to-end signaling protocol for scheduling, the packet is scheduled for transmission based upon the QoS policy for the identified traffic group.